

IN THE ABSTRACT OF THE DISCLOSURE

Please amend the Abstract as follows. A clean copy of the amended Abstract is attached.

~~This invention describes methods of synthesis and applications of planarized photonic crystals. Provided are simple, quick, reproducible and inexpensive methods that combine self-assembly and lithography to achieve the first examples of vectorial control thickness structure, area, topology. Composite materials having orientation and registry of colloidal photonic crystals that have been patterned in substrates for use in different technologies including lab-on-chip and photonic chip technologies. 1-, 2- and 3-D colloidal~~ The colloidal crystals are patterned either on or within surface relief patterns in the substrates of the composite materials and each colloidal crystal exhibits Bragg diffraction. ~~can be used for templating inverted colloidal crystal patterns made of materials like silicon as well as building micron scale structural defects in such colloidal crystals. These photonic crystals can form the basis of a range of optical devices that may be integrated within photonic chips and coupled to optical fibers and/or waveguides to enable development of highly compact planarized optically integrated photonic crystal devices and circuits for use in future all-~~